**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1 – 57 (cancelled)

58. (new): A method for initiating nuclear fusion in a fusionable material, the method comprising the steps of:

introducing a quantity of the fusionable material into a liquid filled vessel;

determining the location of the fusionable material in the liquid filled vessel; and

directing an acoustic pulse towards the determined location of the fusionable material such that the acoustic pulse symmetrically converges on the fusionable material thus increasing the temperature and pressure thereof to a sufficient extent to initiate nuclear fusion in the fusionable material.

59. (new): The method according to claim 58, wherein the acoustic pulse is directed to a fixed location in the vessel and the step of determining the location of the fusionable material comprises determining whether the fusionable material is within a pre-determined distance from the fixed location before initiating the acoustic pulse.

60. (new): The method according to claim 59, comprising the further step of actively directing the fusionable material towards the fixed location.

61. (new): The method according to claim 58, wherein the acoustic pulse comprises a plurality of independently generated pulses and directing the acoustic pulse comprises timing the

initiation of the independently generated pulses to produce a composite pulse that converges on the determined location of the fusionable material.

62. (new): The method according to claim 58, wherein the quantity of fusionable material is buoyant in the liquid and the fusionable material is introduced into the liquid at a lower end of the vessel and allowed to rise under hydrostatic forces to a position proximate the center of the vessel.

63. (new): The method according to claim 62, wherein the fusionable material is introduced at a lower end of the vessel and the acoustic pulse is directed towards the fusionable material when the fusionable material has risen to a location proximate the center of the vessel.

64. (new): The method according to claim 62, further comprising the step of introducing a flow in the liquid, the flow for directing the fusionable material towards a desired location in the vessel.

65. The method according to claim 64, wherein the flow direction is aligned with the direction of the hydrostatic forces.

66. (new): The method according to claim 58, wherein determining the location of the fusionable material comprises determining a first location for the fusionable material and using the first location to predict a future location of the fusionable material.

67. (new): The method according to claim 58, wherein the fusionable material is introduced in the form of a gaseous bubble.

68. (new): The method according to claim 67, wherein the gaseous bubble is very small when it is introduced and the bubble is allowed to expand by rapidly reducing the pressure

in the vessel immediately prior to directing the acoustic pulse at the bubble of fusionable material.

69. (new): The method according to claim 58, wherein the fusionable material is contained in a micro-balloon.

70. (new): The method according to claim 58, wherein the acoustic pulse is generated by a plurality of peripherally located pistons striking the vessel.

71. (new): The method according to claim 70, comprising controlling each of the pistons striking the vessel such that the generated acoustic pulse converges to a desired location in the vessel.

72. (new): The method according to claim 70, wherein a residual acoustic pulse energy remaining after the fusion has been initiated is used to at least partially recompress the pistons.

73. (new): The method according to claim 70, wherein the fusion produces heat and at least a portion of the heat is used to produce steam, at least a portion of the steam being used to re-compress the pistons.

74. (new): The method according to claim 73, wherein the portion of the steam not used to recompress the pistons is used to drive a steam turbine for converting the heat energy into electrical energy.

75. (new): A nuclear fusion reactor comprising:

a vessel for containing a liquid;

an aperture for introducing a quantity of fusionable material into the vessel;

a fusionable material tracking system for determining the location of the fusionable material in the vessel; and

a pulse generation system for generating an acoustic pulse, the pulse being directed toward the determined location of the fusionable material such that the acoustic pulse symmetrically converges on the fusionable material thus increasing the temperature and pressure thereof to a sufficient extent to initiate nuclear fusion in the fusionable material.

76. (new): The reactor according to claim 75, wherein the tracking system comprises one or more ultrasonic sensors for measuring the location of the fusionable material.

77. (new): The reactor according to claim 75, further comprising a fusionable material positioning system for directing the fusionable material to a desired location in the vessel.

78. (new): The reactor according to claim 77, wherein the positioning system comprises a plurality of peripherally located jets oriented towards the center of the vessel.

79. (new): The reactor according to claim 75, wherein the pulse generation system comprises a plurality of independent pulse generators and the tracking system provides a plurality of signals for timing the initiation of the independent pulse generators such that the pulse is directed toward the determined location of the fusionable material.

80. (new): The reactor according to claim 75, wherein the pulse generation system comprises a plurality of peripherally located pistons disposed to strike the outside surface of the vessel thus generating an acoustic pulse in the liquid.

81. (new): The reactor according to claim 80, wherein the vessel is spherically shaped and the plurality of pistons are located to strike the vessel at a plurality of spherically symmetric locations.

82. (new): The reactor according to claim 81, wherein each of the plurality of pistons is sized and actuated to strike the vessel with a substantially identical kinetic energy.

83. (new): The reactor according to claim 80, comprising a position sensor associated with each piston for providing a feedback signal for controlling the impact of each piston on the vessel.

84. (new): The reactor according to claim 83, comprising a controller configured to synchronize the impact of the pistons such that the acoustic pulse converges on a desired location in the vessel.

85. (new): The reactor according to claim 80, comprising a heat exchanger in fluid communication with the vessel for extracting at least a portion of the heat energy generated by the fusion.